



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

December 15, 2021

Mr. Peter Hastings
Vice President, Regulatory Affairs
and Quality
Kairos Power, LLC
707 W Tower Ave
Alameda, CA 94501

**SUBJECT: KAIROS POWER, LLC - HERMES TEST REACTOR CONSTRUCTION PERMIT
APPLICATION REVIEW SCHEDULE AND RESOURCE ESTIMATE (EPIDS:
L-2021-NEW-0011 AND L-2021-NEW-0012)**

Dear Mr. Hastings:

This letter provides a summary of the schedule and a resource estimate for the detailed review of the Hermes construction permit application. On November 29, 2021, the U.S. Nuclear Regulatory Commission (NRC) sent Kairos Power, LLC (Kairos) a letter accepting the Hermes construction permit application for detailed review (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21319A354). The letter of acceptance and docketing provided an estimated completion date of September 2023. The table below provides intermediate milestones for both the safety review and the environmental review.

| Milestone Group – Safety Review | Estimated Completion |
|--|-----------------------------|
| Draft Safety Evaluation | February 2022 |
| Safety Evaluation Completion | November 2022 |
| Advanced Safety Evaluation | February 2023 |
| Safety Evaluation Approval | May 2023 |
| ACRS Review of Safety Evaluation | September 2023 |
| Final Safety Evaluation | September 2023 |

| Milestone Group – Environmental Review | Estimated Completion |
|---|-----------------------------|
| Scoping | August 2022 |
| Initial Draft Sections of DEIS | April 2022 |
| Complete DEIS Sections | July 2022 |
| Finalize DEIS and Related Activities | November 2022 |
| Comment Responses and FEIS | June 2023 |
| Finalize FEIS and Related Activities | September 2023 |

ACRS – Advisory Committee on Reactor Safeguards

DEIS – Draft Environmental Impact Statement

FEIS – Final Environmental Impact Statement

The schedule is based on both historical review timelines and the NRC staff's judgment regarding the estimated level of effort involved for application review areas. Note that this schedule does not include the hearing process which would follow the completion of the safety evaluation and the environmental impact statement. The schedule is also based, in part, on Kairos' commitment to provide its responses to Requests for Additional Information (RAIs) within 30 days after the issuance of the RAIs and within 45 days after the issuance of the second round of RAIs, if needed. Please also be prepared to provide support in a timely and organized manner during technical audits determined necessary by the NRC staff. To achieve this schedule, the NRC staff intends to engage Kairos frequently during the permit review to address schedule details and emerging technical issues. Delays in the NRC staff's receipt of necessary information could result in changes to the review schedule. We request that Kairos inform the NRC staff in writing, as early as possible, should potential delays arise in its support of the schedule.

The NRC staff will conduct its safety-focused review based on the guidance in NUREG-1537, "Guidelines for the Preparation and Review of Applications for the Licensing of Non-Power Reactors," Part 1, "Format and Content" (ADAMS Accession No. ML042430055), and Part 2, "Standard Review Plan and Acceptance Criteria" (ADAMS Accession No. ML042430048). The Hermes application review will be the first time that the NRC staff has evaluated:

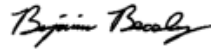
(1) tri-structural isotropic particle fuel and (2) molten salt coolant for a license or permit. Because of the novel aspects of this design, the application review will continue to require additional focus from Kairos and the NRC staff to achieve the forecasted schedule. The schedule could change due to several factors, including RAIs, unanticipated changes to the scope of the review, unsolicited supplements to the application, design changes, and other factors.

Based on the pre-application activities and the information provided in Kairos' submittal, the NRC staff has estimated that it will need approximately 18,000 NRC staff hours and \$280,000 in contractor support to complete the safety and environmental reviews of the construction permit application. If there are emergent complexities or challenges in the NRC staff's review that would cause changes to the initial forecasted completion date or significant changes in the estimated resources, the reasons for the changes, along with the new estimates will be communicated via separate correspondence. Milestones and resource estimates for hearing activities are not included in the schedule or resource estimate because hearing dates will be

established by the Commission or the Atomic Safety and Licensing Board and new resource considerations will need to be developed.

If you have any questions specific to the safety review, please contact the project managers, Ben Beasley (Benjamin.Beasley@nrc.gov), Ed Helvenston (Edward.Helvenston@nrc.gov), or Sam Cuadrado (Samuel.CuadradoDeJesus@nrc.gov). Questions that are specific to the environmental review may be directed to either Tami Dozier (Tamsen.Dozier@nrc.gov) or Peyton Doub (Peyton.Doub@nrc.gov).

Sincerely,



Signed by Beasley, Benjamin
on 12/15/21

Benjamin Beasley, Senior Project Manager
Advanced Reactor Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Docket No. 50-7513

SUBJECT: KAIROS POWER, LLC - HERMES TEST REACTOR CONSTRUCTION PERMIT
APPLICATION REVIEW SCHEDULE AND RESOURCE ESTIMATE
(EPID: L-2021-NEW-0011 AND L-2021-NEW-0012)
DATED: DECEMBER 15, 2021

DISTRIBUTION:

PUBLIC
UARL R/F
WKennedy, NRR
CVan Wert, NRR
KErwin, NMSS
BBeasley, NRR
TDozier, NMSS
PDoub, NMSS
MYoung, OGC
RHarper, OGC
EHelvenston, NRR
SCuadrado, NRR
RidsNrrLACSmith Resource

ADAMS Accession Number: ML21343A214**NRR-106**

| | | | |
|---------------|--------------------|--------------------|------------------|
| OFFICE | NRR/DANU/UARL/PM | NMSS/REFS/ERNRB/PM | NRR/DANU/UARL/LA |
| NAME | BBeasley | TDozier | CSmith |
| DATE | 12/09/2021 | 12/09/2021 | 12/13/2021 |
| OFFICE | NMSS/REFS/ERNRB/BC | NRR/DANU/UARL/BC | NRR/DANU/UARL/PM |
| NAME | KErwin | WKennedy | BBeasley |
| DATE | 12/15/2021 | 12/15/2021 | 12/15/2021 |

OFFICIAL RECORD COPY